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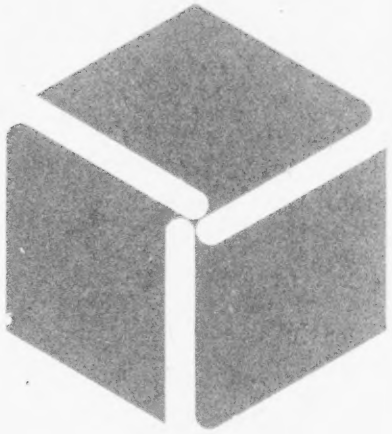
ABSTRACT

The National Center for Higher Education Management Systems at the Western Interstate Commission for Higher Education seeks to improve higher education institutional management, statewide coordination of higher education, and decisionmaking processes in higher education at national levels. This document presents the 1971-72 annual report of NCHEMS and tells of progress made in the areas of research and development, applications and implementation, and positive results in the educational community. A listing with brief descriptions of NCHEMS current projects is also included. (HS)

ED 069235

National Center for
Higher Education Management Systems
at WICHE

Director's Annual Report



1971-1972

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EDUCATION & WELFARE
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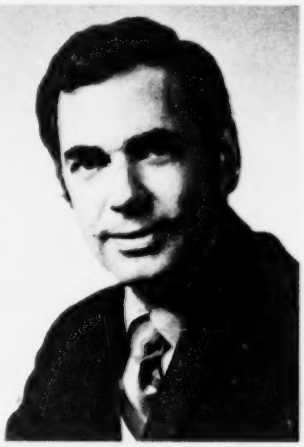
HE 003 561

1972
The Western Interstate Commission for Higher Education
Post Office Drawer P Boulder, Colorado 80302



Ben Lawrence,
Director

In May, 1971, the WICHE MIS program became the National Center for Higher Education Management Systems. During the last eighteen months NCHEMS has stabilized and matured, both in its organization and its performance. The NCHEMS Executive Committee has grown in terms of efficiency and effectiveness; the relationships between the NCHEMS Technical Council, Task Forces, and Executive Committee have been more explicitly defined; and the NCHEMS staff itself has "settled in." Certainly much of the credit for this stabilization is due Mr. James Ryan, past chairman of the Executive Committee, and Mr. Denis Curry, past chairman of the Technical Council.

During the last six months of this operational year, the application and implementation of NCHEMS products and procedures have been of increasing concern to the staff, the advisory structure, and the higher education community. A major effort will continue to meet the requests for application and implementation assistance, to make appropriate modifications in NCHEMS products and procedures as a result of application and implementation, and to alleviate the fears among some of the NCHEMS constituency relative to the misuse of such products and procedures.

The Center anticipates that during the coming months it must face several important issues squarely. The staff has already begun to consider and publicly discuss the legal and philosophical issues related to confidentiality and "full disclosure." The questions of outcome measures and "value added" are current and future concerns to which the staff is devoting considerable resources. The potential misuse of data is receiving similar attention, as is the use of cost information at the federal level.

We are confident that the National Center for Higher Education Management Systems is on the right track and moving with cautious but maximum speed. While the journey is a long one, and many of our destinations are a long way down the road, we look forward to significant contributions ahead.

Ben Lawrence
Director

The NCHEMS Executive Committee

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1971-72

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Vanderbilt University

*Dr. Bert Y. Kersh
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Oregon College of Education

sets policy, gives direction

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Cornell University

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of Florida

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Center for the Study of Higher
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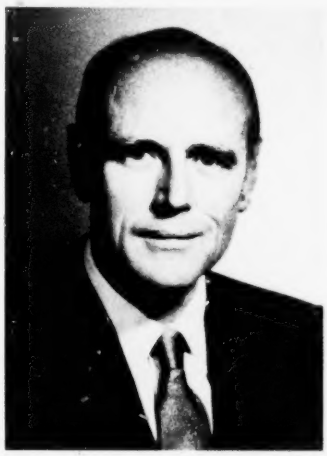
State University of New York
Central Administration

Mr. Garland P. Peed
Assistant Superintendent
of Business
State Center Junior College
District, California



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Chairman,
1972-73

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Planning and Analysis
University of Wisconsin System

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Vice President for Planning
and Budgeting
University of Washington

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Associate Director for Research
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Vice President for Academic
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Executive Secretary
Illinois Junior College Board

Dr. Martin Zeigler
Associate Provost
University of Illinois

*Term expired July 1, 1972.

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Technical Council lends technical expertise

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Chairman,
1971-72

James Eden
Chairman,
1972-73

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Florida State University System

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Vice President
Financial Affairs and Treasurer
The Junior College District of
St. Louis

Mr. John F. Chaney
Vice Provost for
Management Systems
University of Colorado

Mr. Denis J. Curry
Deputy Coordinator for Information
Systems
Washington Council on Higher
Education

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Assistant to the President
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at Plattsburgh

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Director of Administrative Services
and Assistant to the President
University of Rochester—River Campus

*Mr. John Gwynn
Associate Director, Project INFO
Stanford University

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Assistant Chief
Budget Planning and Administration
The California State University
and Colleges

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College of Wooster

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Bureau of Higher Education
Michigan Department of Education

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Florida State Department of Education

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Director, Management Systems
Stanford University

Mr. Ron Sapp
Director, Office of Administrative Systems
Johns Hopkins University

*Dr. George B. Weathersby
Associate Director
Office of Analytical Studies
University of California, Berkeley

*Term expired July 1, 1972.

National Advisory Panel provides broad sounding board

American Association of Collegiate Registrars and Admissions Officers
Dr. Douglas Conner

American Association of Junior Colleges
Dr. Richard E. Wilson

American Association of State Colleges and Universities
Mr. Foster S. Buchtel

American Council on Education
Dr. Alexander Astin

Association of American Colleges
Dr. William W. Jellema

Association of American Medical Colleges
Mr. Joseph S. Murtaugh

Association of Governing Boards of Universities and Colleges
Mr. Charles D. Gelatt

Association of the Directors of Higher Education Facilities Commission
Mr. Gordon Flack

Center for Research and Development in Higher Education
Dr. Lyman Glenny

College and University Systems Exchange
Mr. Charles R. Thomas

Council of Graduate Schools in the United States
Dr. J. Boyd Page

Council of State Governments
Senator David B. Kret

Education Commission of the States
Dr. Richard Millard

Joint Legislative Committee
Mr. A. Alan Post

National Academy of Sciences
Mr. Aaron Rosenthal

National Association of College and University Business Officers
Mr. D. Francis Finn

National Association of State Budget Officers
Mr. Edwin W. Beach

National Association of State Universities and Land Grant Colleges
Mr. Ray H. Bezoni

National Science Foundation
Mr. Justin Lewis

State Higher Education Executive Officers (SHEEO)
Dr. Cameron P. West

U. S. Office of Education
Dr. Chester Neudling

D. Francis Finn
Chairman,
1971-72

Richard Millard
Chairman,
1972-73

The National Center for Higher Education Management Systems at WICHE:

Whence and Whither

The National Center for Higher Education Management Systems at WICHE seeks to improve higher education institutional management, statewide coordination of higher education, and decision-making processes in higher education at national levels. NCHEMS (pronounced EN-chems) develops tools and procedures for deriving information relevant to higher education management at the institutional, state, and national levels and trains users and potential users in their implementation. NCHEMS is supported primarily by the U. S. Office of Education and the Ford Foundation, with additional grants from other agencies and foundations.

Higher education is today the target of growing pressure for improved management. First, institutions of higher education are being faced with a "revenue crunch"; they are being forced to make more effective use of the resources they have at their disposal. Second, more strings are now attached to the revenues that are made available to institutions. In short, accountability has been interpreted in a wider context as having an additional meaning: Not only must stewardship obligations be met; the provider of funds is demanding an assurance that desirable benefits result from the resources invested in the educational enterprise.

Over 800 institutions and agencies of higher education support and participate in NCHEMS. Grass roots cooperation is, and has always been, the underlying philosophy of the Center. From its earliest inception

in 1965, when it was first suggested that interstate cooperation in the application of computer science to higher education management problems should be investigated, institutions and agencies of higher education have been involved. All play a part in the governance of NCHEMS through representatives in the NCHEMS advisory structure, made up of an Advisory Council, a Technical Council, a National Advisory Panel, and a policy-setting Executive Committee.

These advisory bodies include persons from all sectors of the higher education community: institutions and agencies representative of higher education associations; national professional organizations; regional and national compacts for education; statewide coordinating boards and governing boards; and community colleges, multicampus systems, private four-year colleges, private universities, public four-year colleges, and public universities from across the nation.

The NCHEMS Executive Committee determines which programs the Center will undertake and supervises their progress. The Technical Council provides advice to the Executive Committee and staff on matters concerning the general technical development of programs. The National Advisory Panel acts as a sounding board and provides advice from national and regional organizations.

The National Center for Higher Education Management Systems serves a diverse array of clients. NCHEMS has thus far developed two major thrusts for responding to client requests for help in the management process: to provide its clients with definitions, structures, and procedures for the development of a communication base and to provide analytical tools and procedures.

The Communication Base Program develops a standard, comprehensive, and integrated communication base that will facilitate the use and exchange of comparable data among and within NCHEMS cooperating institutions. Participants in NCHEMS chose the Communication Base Program as primary and fundamental to all other efforts toward implementing compatible management information systems. Without a standard communication base, the internal management process cannot be integrated for analysis, planning, and resource allocation purposes, nor can data be exchanged for the meaningful comparisons needed by the same management processes at other organizational levels.

The NCHEMS Analytical Procedures Program addresses the decision maker's problem of relating information from the communication base to current resource allocation decisions. Procedures and techniques are required that allow the decision maker to model complex relationships between activities and resources and to determine rapidly the impact of alternative policy decisions on those relationships.

NCHEMS is organized to provide project support in management needs analysis, research, development, applications, implementation assistance, and publication services.

Research and Development

Several significant changes have occurred in both the conduct and content of the activities within the Research and Development programs at NCHEMS during the past year.

Several projects that were being developed more or less independently reached a stage in their development at which they could usefully be combined. The result has been an added emphasis on consolidation and integration, with less emphasis being given to diversification of activities than in previous years. One of the by-products of this process of integration has been a blurring of the distinctions between Research and Development efforts of the staff. The happy result has been a broadening of the perspectives brought to bear on the solutions to all of the projects under way within the unit.

While few new activities have been initiated during the past year, a significant reordering of priorities and emphases has occurred. Perhaps the most significant of these changes have been those that have resulted in increased attention being devoted to both the Outcomes of Higher Education project and to the various projects intended for use at the state level. The effects on the outcomes project have been two-fold. First, planning has begun for a greatly expanded effort in this area. Second, a major effort has been devoted to the

development of an outcomes profile that is intended to insure that the results of this project reach a point of useful application much sooner than had been anticipated.

With the added emphasis on projects designed for use at the state level, several additional projects in this area have been initiated. Growing out of the activities of the statewide planning conceptualization effort, the development of the statewide portion of the Data Elements Dictionary project has begun. In addition, two projects dealing with student flow at the state level are under way. The first of these is the adaptation of the NCHEMS institutional student flow model for use at the state level. A research effort directed toward developing techniques for forecasting enrollments at the state level has also been initiated.

Significant changes of emphases have occurred both in general project areas and within specific NCHEMS projects. Of special significance in the second category are two changes that have occurred within the Information Exchange Procedures project. The first of these changes reflects a recognition that interinstitutional exchange of information and reporting of information must go hand-in-hand. As a result, added attention has been given to the reporting aspects of the project. Second, the development of exchange procedures

Robert Wallhaus
Director

restricted to instructional costs and related data has given way to the development of procedures for the exchange of information about all aspects of an institution's operation at a higher level of aggregation. Of particular note is an added emphasis on the exchange of noncost information.

Having achieved the point at which several projects could be integrated, the Research and Development Unit has begun activity on intrainstitutional program planning projects. With the aggregation of the NCHEMS program budgeting estimator, program budgeting manual, and departmental management systems projects within a larger framework of program planning, this activity is now emerging as a major effort within the Center.

Applications and Implementation

The primary responsibilities of the Applications Group are (1) the conducting of pilot tests, (2) the final modifications and development of products that are ready for general release, and (3) the distribution of NCHEMS computer software.

To work satisfactorily, the pilot test process requires personnel from the Applications Group, the Research and Development Groups, and the pilot test institutions to work closely together to test both the concepts and the tools of the several NCHEMS products. This involvement of several NCHEMS personnel working together has helped to develop channels of communication within NCHEMS and has fostered an understanding of the various products by all personnel at an early stage in each product's development.

Several NCHEMS products have associated computer software that is now avail-

Robert Huff
Director

able for implementation by NCHEMS constituents. To facilitate the efficient distribution and use of this software, the Applications Unit has defined a formalized distribution procedure that will enable NCHEMS to meet the needs of users rapidly and effectively. Concurrently, the Applications Group is in the process of completing software development and programming standards that should reduce development time and help make NCHEMS products more compatible with one another, easier to understand and modify, and more efficient from the user's point of view.

The recent availability of several NCHEMS products and requests for implementation support from constituent institutions have influenced the activities of the Training and Implementation Group. In early 1972, as the Research and Development Groups were completing the RRPM project and as the concepts embodied therein were presented to NCHEMS constituents, a great deal of interest in implementation of the model was apparent on the part of many institutions. Furthermore, many questions about the feasibility of implementing RRPM on campuses of various kinds and sizes were raised. In order to respond to this demand, the Training and Implementation Group began to devote approximately 50 percent of its resources to implementation assistance. This service has been provided to institutions on a first-come, first-served basis. Institutions have been asked to reimburse NCHEMS only for such out-of-pocket costs as travel and lodging. As a result, an NCHEMS Cost Simulation Model is operational in at least fifteen states and in dozens of colleges and universities.

With 50 percent of the available manpower absorbed in implementation, the decision was made to offer only one-and-one-half day training seminars throughout the country as opposed to the two-and-one-half day regional seminars that had been offered previously. NCHEMS staff feels that it is now possible to cover all essential material related to basic NCHEMS products in the shorter period. However, the traditional two-and-one-half day seminars will be continued on a one-per-month basis in Boulder, Colorado, and will offer institutional personnel from throughout the country an in-depth training experience. As each state begins to develop expertise in cost simulation, a pool of knowledge should exist that will be available to assist other institutions without excessive NCHEMS aid.

As other R&D projects are completed, similar implementation assistance will be provided. Within the next year it is anticipated that the NCHEMS Student Flow Model and Cost Finding Principles software along with the Resource Requirements Prediction Model (RRPM 1.6) will be the major focus of NCHEMS implementation assistance activities. Some experimental field tests of initial approaches to developing instructional program outcome indicator profiles will also be an important effort of the Applications and Implementation Unit.

The Center's Impact

In January 1972 the Business Research Division of the Graduate School of Business Administration at the University of Colorado undertook a study of the impact of the National Center for Higher Education Management Systems at WICHE to produce factual information for purposes of program evaluation and review.

A sample of 106 institutions and agencies was drawn from the universe consisting of a list of Level III and Level IV NCHEMS participating organizations. Due to the heterogeneous nature of the universe, it was divided into three strata: systems, institutions, and coordinating agencies.

Information was collected by telephone interview. To alert respondents to the study, to acquaint them with the type of questions involved, and to let them know to expect the telephone interview, a cover letter and questionnaire were mailed out one week before telephone interviewing began. The response rate was 97.2 percent.

The information that follows is taken from Chapter V of the analysis by Dr. Charles P. Rahe. (Copies of the full report of the impact study are available from NCHEMS on request.)

"Previous chapters of this study have presented detailed profiles of the impact of NCHEMS activities on the three participating groups: systems (Chapter II), institutions (Chapter III) and coordinating bodies (Chapter IV). In this concluding chapter, salient observations made above pertaining to each group are summarized, and relevant comparisons are made among the three groups.

"*NCHEMS Products* . . . The Data Element Dictionary (DED) has the greatest overall recognition level: all of the systems and coordinating bodies are familiar with it, as are nearly 85.0 percent of the institutions. While the degree of familiarity with the Program Classification Structure (PCS) is somewhat lower in two of the three groups, the percentage using the PCS is higher in the same proportion. In general, a high percentage of those not now using either the DED or PCS plan to do so.

"The degree of familiarity with the Resource Requirements Prediction Model (RRPM) is high (close to 90.0 percent in all three categories), but the percentage using it is appreciably lower than for either the DED or PCS. The proportion of respondents expecting to use the RRPM in the future averages close to two-thirds (a perhaps not unexpected result given the low level of present use).

"The product which has had the least impact of the four would appear to be the Cost Estimation Training Model (CEM). Something over one-half of the respondents are familiar with the CEM, but the percentage presently using or planning to use the CEM is lower. . . .

"A pair of additional observations may be made regarding differences among the three main participating groups. First, it appears that the system respondents exhibit the highest percentage participating in NCHEMS products. In the cases of the DED, the PCS, and the CEM, the largest percentage of respondents which are familiar with and using each tool is in the state systems group. Second, the coordinating bodies appear to rank second in terms of product-involvement. A higher percentage of respondents in this group was familiar

with and using the RRPM (92.3 percent and 15.4 percent, respectively) than among either the systems or institutions. Also, coordinating bodies show a high percentage recognition and use of the other three products as well, although less than among systems and institutions.

"In many cases the differences among the groups are small (in terms of general familiarity, particularly), and the institutions in most instances exhibit a degree of involvement not too much below that of the systems and coordinating bodies. This is interesting in view of the number of smaller institutions (community colleges) in the group. . . .

"*Training Seminars.* The respondents were asked to rank the organization, content, and value of NCHEMS training seminars and briefings on a scale of one to five (five = excellent in all ways, etc.). Average rankings were calculated for each of the three groups. . . . The institutions ranked the seminars and briefings highest in terms of both criteria (organization and content, 4.27, and value, 4.22). . . . Public institutions rated the seminars higher than private ones.

"The second highest overall rating for the seminars was given by the coordinating bodies. The averages of 4.17 for content and 4.08 for value were both higher than the figures of 4.13 and 4.00 shown for state system representatives, but less than the averages for all respondents of 4.23 for content and 4.16 for value. . . .

"There was overwhelming agreement among the respondents that they would recommend NCHEMS training seminars to others, and that they will continue to attend and send representatives to them. . . .

"*General Attitudes.* . . . Slightly less than three-quarters (73.3 percent) of all respondents feel that, since the inception of NCHEMS, higher education institutions are more receptive to management systems tools. It is noteworthy that this attitude is particularly prevalent among the two non-institution groups, systems (72.2 percent) and coordinating bodies (91.7 percent) and slightly less so among institutions themselves (70.5 percent). . . . Agreement with this statement is especially prevalent among public universities (79.2 percent) and community colleges (90.5 percent).

"A notably high percentage of system respondents (83.4 percent) feel that organizational structures are rigid and will hinder implementation of new management systems. More than half of the coordinating bodies also agree (58.4 percent), but less than half of the institution respondents (40.7 percent) agree with the statement and 36.7 percent disagree.

"Over three-quarters (75.2 percent) of all respondents feel that NCHEMS has significantly improved the climate of opinion on using management systems, and the percentage is higher among the system (83.4 percent) and coordinating body (83.4 percent) respondents.

". . . Over three-quarters (76.2 percent) feel NCHEMS products will be given a fair test in participating institutions, whereas 5.0 percent do not think so and 18.8 percent have no opinion.

"A fairly uniform percentage of respondents (74.3 percent on the average) feels that a lack of funds will inhibit utilization of NCHEMS products, with a particularly high proportion of the coordinating bodies (83.4 percent) feeling this way. . . .

"Finally, 61.4 percent feel NCHEMS is substantially beneficial in cost-benefit terms, 8.9 percent disagree, and 29.7 percent have no particular opinion."

Funding Source	(1) *Awarded During Year*	(2) *Awarded in Previous Years*	(3) *Total Grants and Contracts (1) & (2)*	(4) *Expenditures through 6/30/72*	(5) *Balance 6/30/72 (3)-(4)*	(6) *Grant or Contract Period*	(7) *Current 12-month Equivalent Budget*
Federal Funding							
HEW, Office of Education, National Center for Educational Research and Development, Division of Research and Development Resources (Base Contract)	$ 830,470	$1,774,993	$2,605,463 (63%)	$2,076,916	$ 528,547	6/21/68 - 11/30/72 (continuation expected)	$1,113,152 (64%)
HEW, Office of Education, National Center for Educational Statistics, Higher Education Studies Branch							
(Higher Education Finance Manual)	107,534	96,995	204,529	59,675	144,854	3/1/71 - 6/30/73	87,655
(HEGIS VIII)	31,045	-0-	31,045	5,406	25,639	4/27/72 - 7/31/72 (continuation expected)	64,862
(Facilities Inventory Classification Manual)	-0-	54,115	54,115	26,184	27,931	6/7/71 - 12/31/72	34,178
(Manpower Accounting Manual)	-0-	65,000	65,000	65,000	-0-	6/15/70 - 10/31/71	-0-
(HEGIS VII Conference)	-0-	35,072	35,072	26,227	8,845	4/22/71 - 3/21/72	-0-
Subtotal	$ 138,579	$ 251,182	$ 389,761 (10%)	$ 182,492	$ 207,269		$ 186,695 (11%)
HEW, Office of the Secretary Division of Grant Administration Policy (Cost Finding Principles)	91,000	148,150	239,150 (6%)	211,537	27,613	6/8/70 - 9/30/72 (continuation expected)	91,000 (5%)
HEW, Office of Education, Office of Program Planning and Evaluation (National Planning Model)	24,610	-0-	24,610 (1%)	-0-	24,610	5/1/72 - 12/31/72	24,610 (1%)
HEW, Office of Education, Contracts and Grants Division (Lab & Center Guidelines for Internal Management)	12,000	-0-	12,000 (0%)	11,517	483	6/28/71 - 3/31/72	-0-
HEW, Office of Education, Bureau of Research, Division of Higher Education (Space Analysis Manual)	-0-	302,355	302,355 (7%)	302,355	-0-	5/15/69 - 3/31/71	-0-
Subtotal Federal Funding	$1,096,659	$2,476,680	$3,573,339 (87%)	$2,784,817	$ 788,522		$1,415,457 (81%)
Foundation Support							
Rockefeller Brothers Fund (Training of Trainers)	16,700	-0-	16,700 (0%)	9,795	6,905	1/17/72 - Indefinite (continuation expected)	16,700 (1%)
Ford Foundation (Research Effort)	-0-	510,000	510,000	258,710	251,290	7/1/70 - 11/1/72 (continuation expected)	291,141
(Visiting Professionals)	-0-	16,329	16,329	4,709	11,620	12/1/69 - 12/31/73	6,532
Subtotal	-0-	$ 526,329	$ 526,329 (13%)	$ 263,419	$ 262,910		$ 297,673 (18%)
Esso Foundation (1971 Annual Seminar)	-0-	8,640	8,640 (0%)	7,864	776	1971 (continuation expected)	8,640 (0%)
Subtotal Foundation Support	$ 16,700	$ 534,969	$ 551,669 (13%)	$ 281,078	$ 270,591		323,013 (19%)
WICHE Supported Expense	1,200	1,200	2,400 (0%)	1,583	817	Annually (continuation expected)	1,200 (0%)
TOTALS	$1,114,559	$3,012,849	$4,127,408 (100%)	$3,067,478	$1,059,930		$1,739,670 (100%)

NCHEMS Base Contract
Current Project Budgets
HEW, Office of Education (OE)
National Center for Educational Research & Development (NCERD)
Division of Research & Development Resources (DRDR)
2/1/72 - 11/30/72

	Budget
Program Planning & Policy Development	
Director's Office	$ 69,085
Advisory Structure	82,212
Coordinative Services	43,481
Program Development	45,168
Communication Services	72,538
1972 Seminar	-0-
Total Program Planning & Policy Development	$312,484
Research & Development	
Data Element Dictionary	16,043
NCHEMS Glossary	7,671
Statewide Data Element Dictionaries	8,221
Program Measures	16,423
Statewide Program Class Structure	41,451
Faculty Activity Analysis Procedures	38,921
Information Exchange Procedures	49,901
Outputs Planning	12,408
Program Budgeting Manual	39,793
Faculty Activity Analysis Manual	14,541
Student Flow Analysis Manual	15,082
Program Budget Estimator	26,018
Statewide Student Flow Model II-A	12,131
Statewide Higher Education RRPM	16,286
Total Research & Development	$314,890
Applications & Implementation	
Training & Implementation	$223,857
Resource Requirements Prediction Model	34,083
Institutional Student Flow Model I-A	40,782
Total Applications & Implementation	$298,722
TOTAL BASE CONTRACT	$926,096

NCHEMS Research Effort
Current Project Budgets
The Ford Foundation
7/1/71 - 11/1/72

	Budget
General Research	$ 34,123
Outputs of Higher Education	77,816
Statewide Planning	68,008
Financing Higher Education	34,854
Student Flow	29,109
Resource Allocation & Models	29,666
Future Postsecondary Education	17,565
Total	$291,141

NCHEMS
Revolving Accounts[1]
6/30/72

	Income	*Expenditures*	*Balance*
Publications	$68,829	$24,094	$44,735
Computer Software[2]	1,200	3,089	(1,889)
Total	$70,029	$27,183	$42,846

[1] Revolving accounts were set up with non-federal funds to handle the income and expenditures from the sale of publications and computer software. NCHEMS policy is to recover the cost of reproducing and handling publications and software that are for sale.

[2] The computer software revolving account was recently set up to handle income and expenditures from the sale of computer software.

Current NCHEMS Projects

Cost Finding Principles
To develop procedures for conducting cost analyses in institutions of higher education. These procedures will define the methodology for identifying, distributing, and allocating cost information to the programmatic activities of institutions of higher education.

Data Element Dictionary, Second Edition
To develop a standard set of data element terminology used by the various NCHEMS products. First edition completed.

Departmental Management Systems
To develop a set of basic tools that a departmental chairman can use in carrying out his prescribed responsibilities. Such responsibilities include allocation of resources, maximum utilization of those resources, management of personnel, writing and/or approval of research projects, projection of departmental growth initiation of public services projects, determination of the impact of adding a new major or minor program within the department.

Facilities Inventory Classification Structure
To revise and update the Federal Higher Education Facilities Classification and Inventory Procedures Manual in accordance with experience gained from using the current manual and with recent developments in higher education planning and management.

Faculty Activity Analysis Manual
To develop a manual that provides guidelines to institutions wishing to undertake analysis of faculty activity. Included within this manual will be recommended procedures for various analytical studies and guidelines for data collection

Faculty Activity Analysis Procedures
To develop a manual that describes a standard methodology for the categorization of faculty effort and the distribution of faculty effort to the programs in an institution of higher education (as represented by the Program Classification Structure).

**Federal Financing for Higher Education*
To develop viable procedures for providing federal financial support to students, institutions, and/or states that are consistent with the needs of higher education, promote the goals of higher education, and provide consistent and productive incentives for higher education.

Future Planning and Management Systems
To ensure that concepts, tools, and procedures will be available to assist higher education decision makers in the future. It will develop a basis for future planning and management systems in higher education and attempt to ensure that management tools and techniques will be relevant to the changing structures, responsibilities, and trends in higher education.

Glossary
To produce a document that summarizes the definitions of the derived data elements (i.e., those data elements arrived at through combination or manipulation of the basic data elements) and other basic terminology used by the various NCHEMS products.

HEGIS VIII

To assist the National Center for Educational Statistics (NCES) in determining user requirements for educational statistics. This purpose is to be achieved through the mechanism of a conference.

Higher Education Finance Manual
To determine the financial data concerning higher education necessary for planning, budgeting, and reporting and to design recommended procedures for collecting and arraying such data for the Higher Education General Information Survey (HEGIS).

Information Exchange Procedures
To define the conventions by which data are to be aggregated and arrayed for exchange among those institutions and agencies desiring to exchange such data as an NCHEMS participant.

**Manpower Accounting Manual*
To provide a comprehensive and systematic set of categories whereby an institution's assignments of manpower, including the faculty, may be identified with occupational activities and institutional functions.

**National Foundation for Postsecondary Education*
To do a planning and management analysis of the proposed National Foundation on Postsecondary Education. This analysis is to serve as background for the planning group and director of the National Foundation.

National Planning Model—Phase II
To develop a national model to assess the impact of federal programs in attaining national goals and to evaluate alternative national strategies. Research efforts will focus on analysis and documentation of the prime student demand factors, institutional decision variables, and their relationships to federal programs.

Outcomes Planning
To develop measures (indicators or proxy measures) of the outcomes of higher education and to incorporate these measures in higher education planning in such a way as to make them operationally useful.

Program Budget Estimator (PROBE)
To develop an activity-based, department-oriented simulation model to aid in the application of program budgeting to higher education.

Program Budgeting Manual
To develop generalized procedures and guidelines for establishing a program budgeting system within an institution of higher education.

**Program Classification Structure*
To develop a program structure that will provide a standard means of identifying, organizing, and describing the activities of higher education. The PCS is intended to provide a mechanism that will facilitate the organization of data for planning and analysis.

Program Measures
To identify and describe the quantitative indicators that will serve to measure the resources and activities associated with the program elements as defined by the Program Classification Structure.

Resource Requirements Prediction Model
To develop and validate a set of generalized computer routines (a model) designed to aid institutional managers in rapidly determining the future resource implications of alternative policy and planning decisions.

Resource Utilization Analysis
To develop techniques that will aid institutions in more effectively utilizing the resources available to them.

**Space Analysis Manual*
To compile a series of (institutional level) methods for evaluating the current capacity of building facilities, managing the use of space, and projecting building space requirements.

Statewide Data Elements
To identify and define explicitly those data elements that are required for statewide planning purposes. This activity will supplement the activities of the Second Edition Data Elements Dictionary Project by developing a publication (section) dealing exclusively with state-related data elements.

Statewide Higher Education Resource Prediction Model
To develop a computer simulation model that will facilitate estimating resource requirements for higher education on a statewide basis.

Statewide Planning
To conceptualize the problems of state level planners and decision makers from the perspective of modern management principles. As the conceptualization evolves, attention will shift to determining the need for and feasibility of specific activities and tools for planning and management at the state level.

Statewide Program Structure
To develop a program structure designed to serve as the basis for data collection and analysis required to support higher education planning and management at the state level. This structure will also serve as the framework for the development of generalized analytical models designed specifically for use at the state level.

Statewide Student Flow Model II-A
To extend the outcomes of the initial, institutional based, Student Flow Model Project (SFM I-A) to the problem of student movements between institutions.

Student Flow Analysis
To develop and publish a manual describing various procedures and statistical techniques that may be applied to the problems of analyzing student flow patterns and the projection of student preferences.

Student Flow Model I-A
To develop a computer-based simulation model that utilizes the institution's historical experience of student flow (i.e., structural characteristics) to estimate future enrollment patterns categorized by student levels and field of study (major).

Student Flow Model Research
To develop analytical models that will aid in predicting student enrollments and in describing student progression through postsecondary education.

Training and Implementation
To promote the adoption and implementation of NCHEMS Management tools and techniques in institutions and agencies throughout the higher education community.

Visiting Professionals Training Program
To provide the opportunity for institutional or agency representatives to obtain a full understanding and working knowledge of NCHEMS developmental work and to contribute in a meaningful fashion to some specific aspect of the developmental work.

*Project completed.

Current NCHEMS Publications

An Approach to Planning and Management Systems Implementation $1.00/copy

Compatible Management Information Systems Technical Report #1 ..... $1.00/copy

Cost Finding Principles and Procedures
Preliminary Field Review Edition
Technical Report #26 ..... $2.00/copy

Data Element Dictionary $5.00/set
First Edition

Student	($1.00)	Technical Report #7
Staff	($1.00)	Technical Report #8
Facilities	($1.00)	Technical Report #9
Course	($1.00)	Technical Report #11
Finance	($1.00)	Technical Report #12

Data Element Dictionary ..... forthcoming
Second Edition

Faculty Activity Analysis: Overview and Major Issues
Technical Report #24 ..... $1.00/copy

Focus on MIS $1.50/copy

Higher Education Facilities Planning and Management Manuals $7.50/copy

A Higher Education Outcome Profile and Accounting System ..... forthcoming

Higher Education Planning and Management Systems: A Brief Explanation $1.00/copy

Instructional Program Budgeting in Higher Education ..... forthcoming

Inventory of Educational Outcomes and Activities $1.00/copy

Outcomes of Higher Education ..... forthcoming

The Outputs of Higher Education: Their Identification, Measurement, and Evaluation $3.50/copy

Program Classification Structure
First Edition
Technical Report #27 ..... $2.00/copy

A Resource Requirements Prediction Model (RRPM-1): Guide for the Project Manager
Technical Report #20 ..... $5.00/copy

A Resource Requirements Prediction Model (RRPM-1): Input Specifications
Technical Report #23 ..... $5.00/copy

A Resource Requirements Prediction Model (RRPM-1): An Introduction to the Model
Technical Report #19 ..... $5.00/copy

A Resource Requirements Prediction Model (RRPM-1): Programmer's Manual
Technical Report #22 ..... $15.00/copy

A Resource Requirements Prediction Model (RRPM-1): Report on the Pilot Studies
Technical Report #21 ..... $5.00/copy

Statewide Planning for Postsecondary Education: Issues and Design $3.50/copy

Student Flow Models
A Review and Conceptualization
Preliminary Field Review Edition
Technical Report #25 ..... $1.00/copy

Why Program Planning and Budgeting Systems? $1.00/copy

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NCHEMS publication lists are updated frequently to include recently published documents. Requests for current publication lists and orders for NCHEMS publications should be directed to Publication Unit, Western Interstate Commission for Higher Education, P.O. Drawer P, Boulder, Colorado 80302.

Currently Available Software

Cost Estimation Model (CEM)

Cost Finding Principles (CFP)

Induced Course Load Matrix (ICLM) Generator

Resource Requirements Prediction Model (RRPM) 1.3

Resource Requirements Prediction Model (RRPM) 1.6

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Inquiries about NCHEMS software should be directed to Mrs. Ceona Jarrard, National Center for Higher Education Management Systems at WICHE, P.O. Drawer P, Boulder, Colorado 80302.

National Center for Higher Education Management Systems

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6-30-72

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The Western Interstate Commission for Higher Education (WICHE) is a public agency through which the 13 western states work together

. . . to increase educational opportunities for westerners.

. . . to expand the supply of specialized manpower in the West.

. . . to help universities and colleges improve both their programs and their management.

. . . to inform the public about the needs of higher education.

The Program of the National Center for Higher Education Management Systems at WICHE was proposed by state coordinating agencies and colleges and universities in the West to be under the aegis of the Western Interstate Commission for Higher Education. The National Center for Higher Education Management Systems at WICHE proposes in summary:

To design, develop, and encourage the implementation of management information systems and data bases including common data elements in institutions and agencies of higher education that will:

- provide improved information to higher education administration at all levels.
- facilitate exchange of comparable data among institutions.
- facilitate reporting of comparable information at the state and national levels.

Western Interstate Commission for Higher Education
Post Office Drawer P — Boulder, Colorado 80302

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